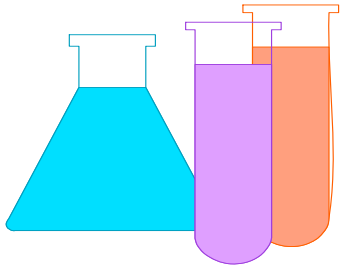
Fort Detrick Hazardous Materials and Hazardous Waste Management



Hazardous Materials and Hazardous Waste Management

ECO Agenda

- **Hazardous Waste Management**

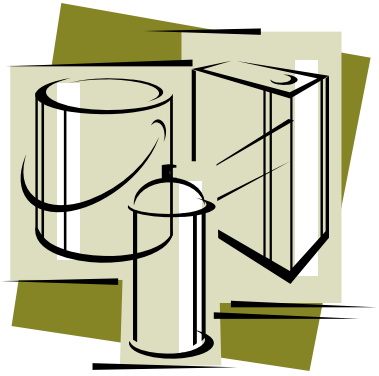
- **Universal Waste Management**

- **Hazardous Materials Management Program**

Hazardous Materials and Hazardous Waste Management

The U.S. Army Garrison Environmental Management Office (EMO) is responsible for overseeing the "Cradle to Grave" management of all Hazardous Materials Purchased and Hazardous Waste generated at Fort Detrick.

Hazardous Waste Management



Hazardous Materials and Hazardous Waste Management

Hazardous Waste Management

The Resource Conservation and Recovery (RCRA) Act Passed by Congress in 1976 to provide a cradle-to-grave management of hazardous waste, RCRA Goals were:

- **To protect human health and the environment from hazards associated with the generation, storage, transportation, treatment and disposal of waste by-products.**
- **Established criteria for identification and listing of hazardous waste**
- **Established standards for generators, transporters and treatment, storage and disposal facilities.**

Hazardous Waste Management

Regulated By:

Federal – 40 CFR 262

Maryland – COMAR 26.13

Army – AR 200-1

Fort Detrick – FD-(under development)

How Do Materials Become Wastes?

- Materials that can no longer be used for their intended purpose are wastes.
- Materials become wastes when:
  - Shelf life expires (e.g. medications, chemicals)
  - Contamination with other substances occurs (e.g., motor oil with engine metal particles)
  - Physical changes occur (e.g., paint freezes)
  - Can no longer be used/needed

Hazardous Waste Management

The responsibility of determining whether or not a waste is a *Hazardous Waste* lies with the generator of the waste. The determination can be made by applying your (generator) knowledge of the process or by submitting a sample of the waste to a laboratory for analysis.

Knowledge of the process includes knowing the properties of the chemicals used and how they are used. Material Safety Data Sheets (MSDSs) provide most of the information needed to make a determination. Therefore maintaining a current MSDS file is important.

Please contact the Hazardous Material Manager for assistance in making HW determinations.

Classification of Wastes: Use Material Data Safety Sheet (MSDS)

- **Physical data (pH, Flashpoint, HW Codes)**
- **Manufacturer data**
- **Health hazard data**
- **Hazardous ingredients**
- **Special protection and precautions**
- **Spill or leak procedures**
- **Reactivity data**
- **Fire and explosion data**

Hazardous Waste Management

EPA Regulated Hazardous Waste

- Labeling Requirements
- Container Management
- Storage Area Requirements
- Common Examples

HW Identification/ Characterization

- **HW Identification/Characterization**
- **A waste can be characterized as hazardous for one of two reasons:**

1. <u>Characteristics</u> Any waste that exhibits any of the following :

- **Ignitability**
- **Corrosivity**
- **Reactivity**
- **Toxicity**

2. <u>Listed</u> Hazardous Wastes

- **It is actually listed by name as a hazardous waste by the EPA**

Identification/ Characterization

- **Ignitability**
  - **Liquids with a flash point <140 ºF**
  - **Non-liquid capable of spontaneous combustion**
  - **Ignitable compressed gas**
  - **Oxidizers**

<u>Examples:</u>

- **acetone, toluene, paint thinners, epoxies, plastic cement, parts washers**

Identification/ Characterization

- **Corrosivity**
  - **Acids and Bases**
  - **Aqueous wastes with a pH $\leq$ 2 or $\geq$ 12.5**

  Examples:

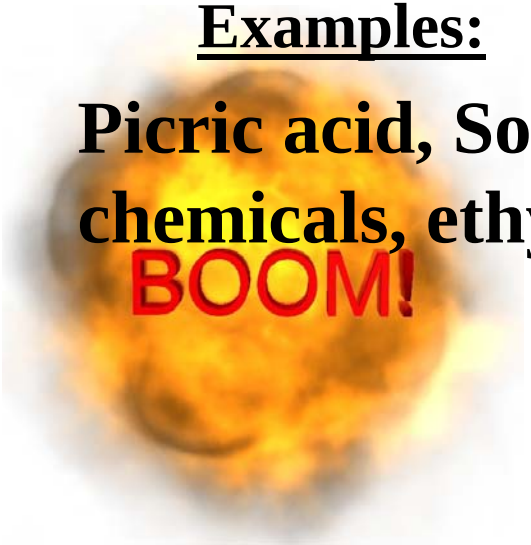
  Hydrochloric acid, sulfuric acid (batteries motor pool), nitric acid, glass cleaner, hydroxides, bases, drain cleaners, water treatment chemicals.
  - **ICP mass-spectrophotometers – nitric waste.**

Identification/ Characterization

- **Reactivity**
  - **Applies to waste which is unstable, water reactive, explosive, etc…**
  - **Determination is typically based on generator knowledge - no testing is required**

Examples:

Picric acid, Sodium Azide, peroxide forming chemicals, ethyl ethers, dinitro compounds.



Compressed Gas Cylinders

They explode inside the incinerator!!!

Do not allow this to happen!

Identification/ Characterization

Toxicity – EPA Definition

- **Fails Toxic Characteristic Leaching Procedure (TCLP) Test**
- **Simulates Condition in Landfill – Protects Drinking Water Sources**

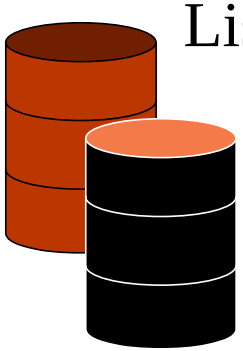
Examples:

Heavy metals: mercury, lead, silver, chrome 6, chromic acid, and others.

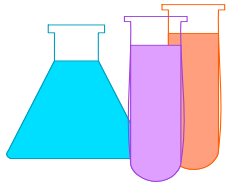
This is why it is important to keep batteries out of the incinerator/landfill.

Identification Characterization

- HW Identification/Characterization



Listed HW



- **F-listed:** wastes from non-specific sources
  - *(methylene chloride, TCE)*
- **K-listed:** wastes from specific source
  - *(wood preservation, pigment mfg. sludges)*
- **D- Listed** (characteristic) wastes
  - *(ignitability, corrosivity, reactivity, TCLP Wastes)*

- **U-Listed *toxic***- unused discarded commercial chemical products
  - *(acetone, methanol, phenol, creosote)*
- **P-Listed *acutely toxic*-** unused discarded commercial chemical products, sole active ingredient
  - *(arsenicals, cyanides, some chemotherapy drugs, sodium azide, osmium tetroxide*)

Hazardous Waste Management

Requirements Satellite Accumulation Points (SAP)
Federal Regulations 40 CFR 262.34(c)

- ***DO NOT*** **accumulate more than 55-gallons of HW or 1-quart of *acute HW* in any one SAP. The excess of 55-gallons or acute HW *MUST* be removed within 72 hours and placed into a 90-day facility.**
- **HW removed from SAP must *Immediately* go to a 90-day facility**
- **HW containers *MUST* remain at are near the original point of generation (same room). Do not move waste from SAP to SAP.**
- **HW containers *MUST* be under the control of the operator of the process generating the waste.**

Hazardous Waste Management

Requirements Satellite Accumulation Points (SAP)

Federal Regulations 40 CFR 262.34(c) (continued)

- **HW containers *MUST* be marked with the words ("hazardous waste") or specific waste ("waste methanol")**
- **HW containers *MUST* be compatible with waste (i.e. acid resistant)**
- **HW containers *MUST* remain closed/sealed during storage, except when waste is being added or removed.**

Improper Hazardous Material Storage

Improper HW Storage

Hazardous Waste Management

Requirements Satellite Accumulation Points (SAP)
Federal Regulations 40 CFR 262.34(c) (continued)

- **HW containers *MUST* be in good condition, not leaking or damaged**
- **Waste placed in secondary containment (BMP-best management practice)**
- **Segregate waste streams (HW vs. Non Reg)**
  - **acids, bases**
  - **flammables and acids**

What's Wrong With This Picture???

Hazardous Waste Management

Common Examples

- Alkyd Paint (Oil-based)
- Solvents/Thinners (Ethanol, Xylene, Methanol, Acetone, etc.)
- Contaminated Gasoline
- Materials containing greater than 24% Alcohol
- Mercury/Mercury Thermometers/Manometers
- Lead Foil
- Lead-Acid Batteries (when not recycled)
- Corrosive Chemicals (Acids/Bases)
  - Water Treatment Chemicals
  - Acetic, Nitric, Sulfuric Acids
  - Sodium Hydroxide, Ammonium Hydroxide, etc.

HW cannot be disposed as medical waste

Do not dispose of chemicals in medical waste or sharps or medical waste containers

HW cannot be disposed as regular trash

This includes regular trash cans and dumpsters!

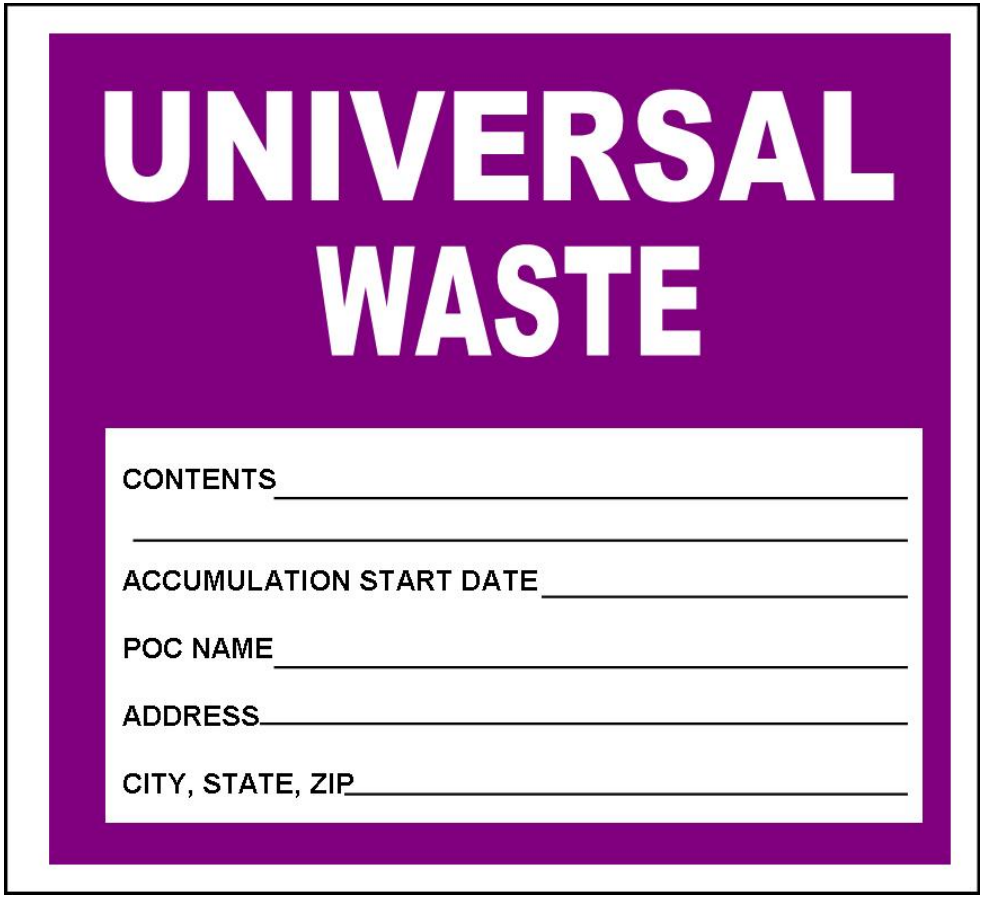
HW does not go down the drain

Call the Environmental Office prior to discharging chemicals down the drain !

Universal Waste Management

Universal Waste

- Definition
- Types
- Container Labeling
- Container Management
- Accumulation / Storage Requirements
- Examples



Universal Waste Management

Definition

Universal Waste is a special category of Hazardous Waste and for which the regulations have been streamlined for certain wastes. A waste must also meet certain criteria to qualify as a universal waste. For instance, it must be widespread, commonly found in medium to large volumes, and exhibit only low-level hazards or be easily managed.

The Universal Waste Regulations apply to the following categories of Hazardous Waste:

- **Lamps**
- **Batteries**
- **Mercury-Containing Thermostats**
- **Pesticides – As part a recall process**
- **PCB Containing Light Ballasts (less than 50 ppm)**

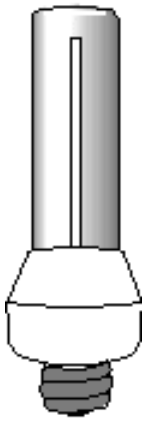
Universal Waste Management

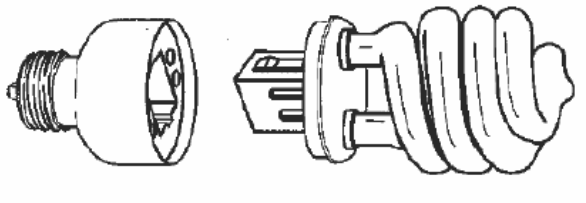
Types

LAMPS

Common universal waste electric lamps include, but are not limited to;

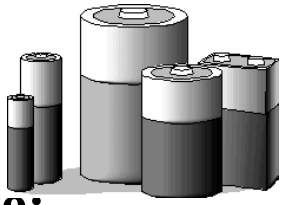
- **Fluorescent Tubes (all sizes)**
- **High Intensity Discharge (HID)**
- **Neon**
- **Mercury Vapor**
- **High Pressure Sodium**
- **Metal Halide**





Universal Waste Management

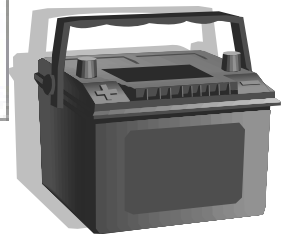
Types (Cont'd)



Batteries

Common universal waste batteries include, but are not limited to;

- **Nickel Cadmium (Ni-Cd)**
- **Small Sealed Lead-Acid (SSLA) batteries**
- **Nickel Metal Hydride (Ni-MH)**
- **Lithium-Ion**
- **Zinc-Air**
- **Rechargeable Alkaline**
- **Spent Lead-Acid Batteries (Only those not currently being recycled)**



Universal Waste Management

Types (Cont'd)

Mercury Thermostats

Thermostats which can contain as much as 3 grams of liquid mercury and are located in almost any building. Also include switches containing mercury. Mercury containing switches are usually located within automated process equipment used in laboratories.

- **Contain metallic Mercury**
- **Metallic Mercury removed from the thermostat**

Universal Waste Management

Types (Cont'd)

Pesticides - As part a recall process

The Universal Waste classification applies to unused pesticide products collected and managed as part of a waste pesticide collection and/or recall program mandated by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), or a voluntary recall program.

Universal Waste Management

Types (Cont'd)

PCB Light Ballasts (less than 50 ppm) are managed as Universal Waste.

- **All ballasts manufactured through 1979 contain PCBs.**
- **Ballasts manufactured after 1979 are labeled "NO PCBs" if they do not contain PCBs**
- **If a capacitor is missing this label, assume it contains PCBs.**

Universal Waste Management

Container Labeling

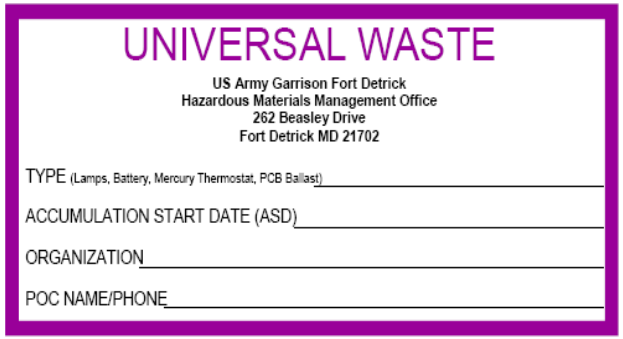
Universal Waste containers must be labeled as soon as waste is placed in a container

(i.e. when a spent light tube is placed in a carton). Universal Waste labels ARE required,

to have an *Accumulation Start Date (ASD)*. Labels must contain the following information.

Accumulation Start Date (ASD)

- **Generator (Activity) name, phone number**
- **Contents of Container**
- **Information can be marked on container**



Universal Waste Management

Container Labeling (Cont'd)

When labeling Universal Waste containers, the labels must contain one of the following Phrases.

- **"Universal Waste – (Battery(ies), Lamps, etc.)"**
- **"Waste - (Battery(ies), Lamps, etc.)"**
- **"Used - (Battery(ies), Lamps, etc.)"**

Universal Waste Management

Container Management

- **Universal Waste must be placed in containers that are structurally sound to prevent breakage and compatible with the waste.**
- **UW batteries and/or mercury thermostats that show evidence of leakage, spillage, or damage that could cause leakage, must be containerized.**
- **Containers must remain closed/sealed at all times and only opened when waste is being added or removed!**

Universal Waste Management

Accumulation / Storage Requirements

Universal Waste can be accumulated on-site for no longer than 1 year. However, rather than accumulating waste for a year, Universal Waste should be turned in to the designated storage facility as needed, or as containers become full.

Universal Waste Management

Examples

What Not to Do !!!!

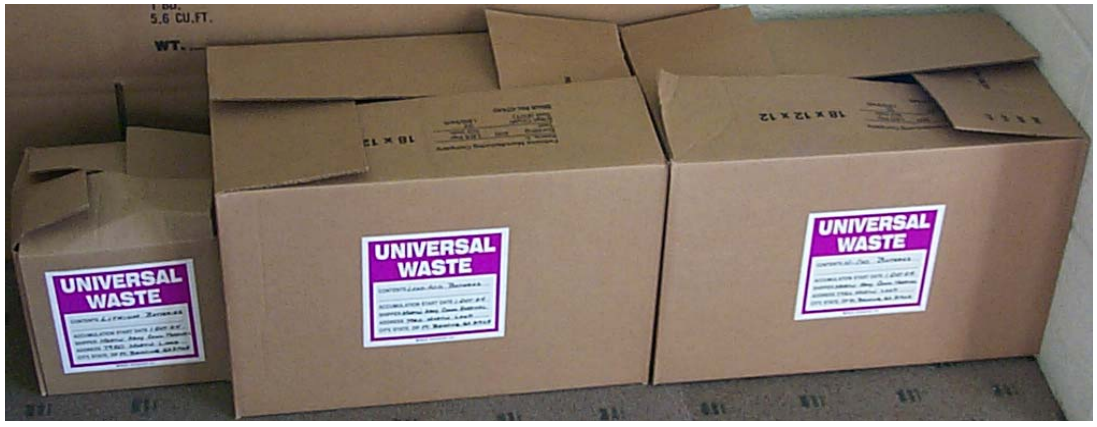
Universal Waste Management

Examples

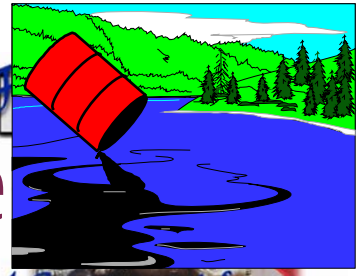
This is how it should look!!!!!

UW Labeling

40 CFR 273.34



Cost of Noncompliance



Civil Penalties

Max. $32,500/violation

Per day of noncompliance

Criminal Penalties

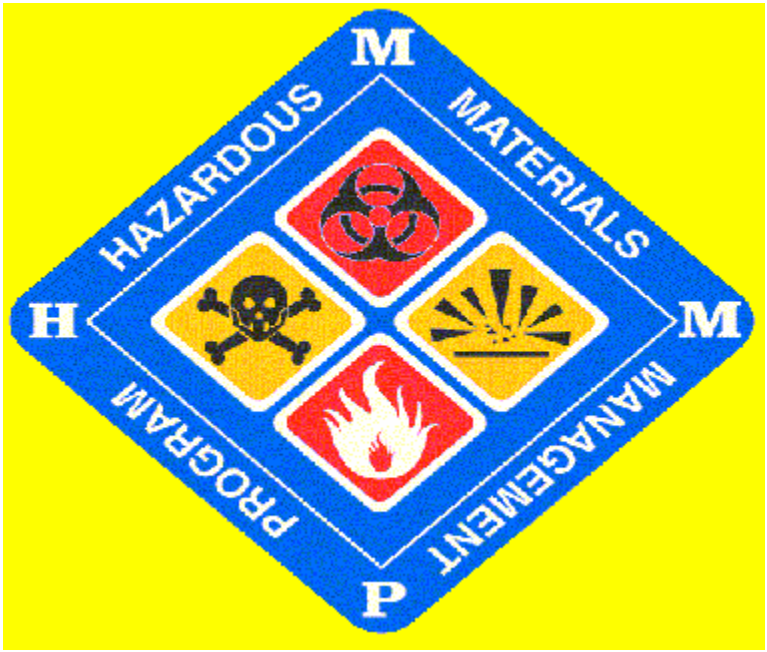
Max. $50,000/violation

Per day of noncompliance and or 2-5 years imprisonment

QUESTIONS ?

Please contact the Hazardous Material Manager (301-619-3441) if you have any questions regarding the management of Hazardous Waste or Universal Waste

Hazardous Materials Management Program (HMMP)



Hazardous Materials Management Program

- Use an automated tracking system ***Hazardous Substances Management System*** (HSMS) for all hazardous materials and waste on the Installation
- Provides an automated library for MSDSs (EMO can help you find MSDSs)
- Can track authorization, training and equipment requirements
- Allows for full accountability of all hazardous materials and waste on the Installation

Hazardous Materials Management Program

Hazardous Materials Fort Detrick will be tracking

Automotive Products

- Fluids, Cleaners, Body Filler, Degreasers, Paints and Fuel Containers/Cans

Adhesives

- Glues, Epoxies and plastic cements

Paint and Related Products

- Varnishes, Thinners, Laquers, Caulks, Putties and Fillers

Cleaners and Degreasers

- WD-40, Simple Green, Windex, etc.

Other Hazardous Chemicals

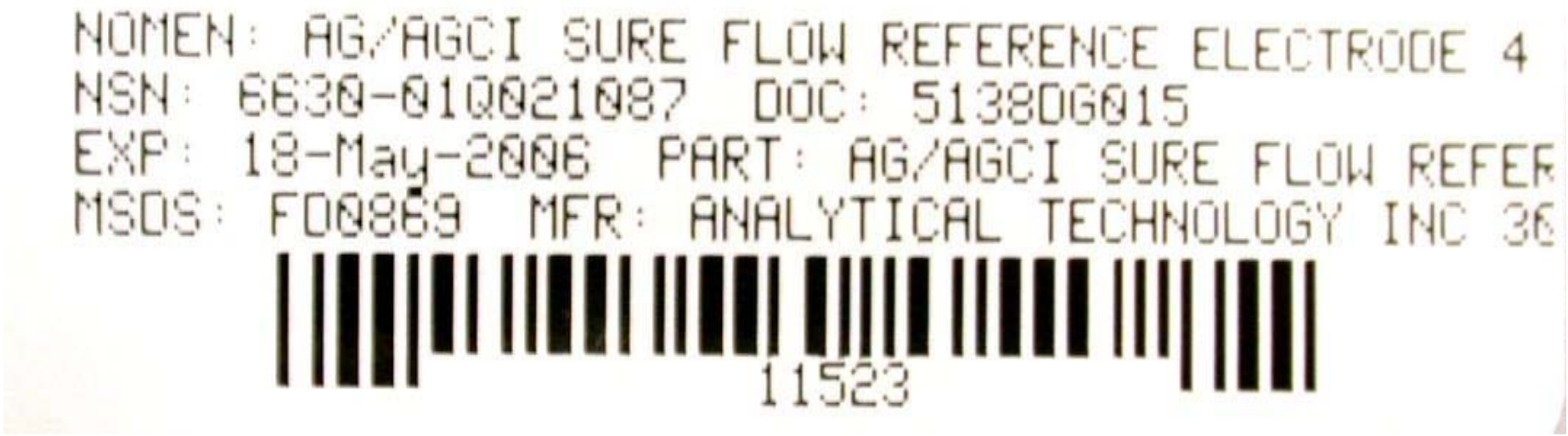
- Acids, Herbicides, Petroleum Based, Ammonia, Alcohol, Compressed Gases, Batteries (excluding alkaline and carbon)
- All aerosol containers

Hazardous Waste Management

Hazardous Material Management Office Building 262

- **Hazardous Material Management**
- **Excess HAZMAT reissue program**
- **Inventory control and tracking HM/HW with HSMS**
- **Operates the HAZMART for Fort Detrick's HMMP**
- **Screen HM orders for Pollution Prevention (P2) opportunities**

Typical HSMS Label



Hazardous Materials Management Program

Call the Environmental Management Office for any HSMS Questions

301-619-3440 or

301-619-3441

“Ask First”

Contact the Environmental Management Office if there is any question regarding Hazardous Waste Management.

Environmental Hotline: 301-619-0044